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Claims

1.   A method comprising:

providing a variable bit rate (VBR) representation
of an image sequence, the VBR representation comprising
a plurality of blocks of information;

determining a plurality of time intervals Tp
within the VBR representation in which a number of
blocks of information per unit time is greater than a
baseline value;

determining a plurality of time intervals Tn
within the VBR representation in which a number of
blocks of information per unit time is less than the
baseline value; and

creating a second representation of the image
sequence in which some blocks of information Bp are
removed from the time intervals Tp and interlaced with
blocks of information Bn in the time intervals Tn to
reduce a variation in a number of blocks of information
per unit time between the time intervals Tp and Tn.

2.   The method of claim 1 wherein the number of
blocks of information per unit time in the second
representation is about equal to the baseline value in
the time intervals Tp and Tn.

3.   The method of claim 1 further comprising:
determining a bit rate for encoding the image
sequence to the VBR representation which produces a
desired information content of the second
representation and constrains a maximum bit rate of the

second representation to be less than or equal to a
predetermined value.

4.   The method of claim 1 further comprising:
    5   determining a bit rate for encoding the image
sequence to the VBR representation which substantially
maximizes a desired information content of the second
representation and constrains a maximum bit rate of the
second representation to be less than or equal to a
    10   predetermined value.

5.   The method of claim 1 further comprising:
    populating a header in the second representation
with data indicating the time intervals Tn.
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6.   The method of claim 1 further comprising:
    streaming the second representation of the image
sequence via a communication network;
    receiving the second representation of the image
    20   sequence via the communication network; and
    reconstructing frames of the image sequence
concurrently with said receiving, said reconstructing
comprising:
        during the time intervals Tn, reconstructing
    25   frames of the image sequence based on blocks of
        information Bn received about in real time, and
        storing the blocks of information Bp in a buffer;
        and
        during the time intervals Tp, reconstructing
    30   frames of the image sequence based on the blocks
        of information Bp stored in the buffer and blocks

of information received about in real time.

7.   A method of reconstructing an image sequence
originally encoded in a variable bit rate (VBR)
representation, the VBR representation comprising a
plurality of blocks of information, the VBR
representation defining a plurality of time intervals
Tp in which a number of blocks of information per unit
time is greater than a baseline value and a plurality
of time intervals Tn in which a number of blocks of
information per unit time is less than the baseline
value, the method comprising:

receiving a second representation of the image
sequence in which some blocks of information Bp are
removed from the time intervals Tp and interlaced with
blocks of information Bn in the time intervals Tn to
reduce a variation in a number of blocks of information
per unit time between the time intervals Tp and Tn; and

reconstructing frames of the image sequence
concurrently with said receiving, said reconstructing
comprising:

during the time intervals Tn, reconstructing
frames of the image sequence based on blocks of
information Bn received about in real time, and
storing the blocks of information Bp in a buffer;
and

during the time intervals Tp, reconstructing
frames of the image sequence based on the blocks
of information Bp stored in the buffer and blocks
of information received about in real time.

8.   The method of claim 7 wherein the number of blocks of information per unit time in the second representation is about equal to the baseline value in the time intervals Tp and Tn.

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9.   The method of claim 7 wherein the second representation comprises a header with data indicating the time intervals Tn, the method further comprising extracting the data indicating the time intervals Tn
10   from the header, wherein said reconstructing the frames is based on the data indicating the time intervals Tn.

10.   A system comprising:
an encoder to provide a variable bit rate (VBR)
15   representation of an image sequence, the VBR representation comprising a plurality of blocks of information; and
a processor to determine a plurality of time intervals Tp within the VBR representation in which a
20   number of blocks of information per unit time is greater than a baseline value, to determine a plurality of time intervals Tn within the VBR representation in which a number of blocks of information per unit time is less than the baseline value, and to create a second
25   representation of the image sequence in which some blocks of information Bp are removed from the time intervals Tp and interlaced with blocks of information Bn in the time intervals Tn to reduce a variation in a number of blocks of information per unit time between
30   the time intervals Tp and Tn.

11.   The system of claim 10 wherein the number of
blocks of information per unit time in the second
representation is about equal to the baseline value in
the time intervals Tp and Tn.

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12.   The system of claim 10 wherein the processor
is further to determine a bit rate for encoding the
image sequence to the VBR representation which produces
a desired information content of the second

10   representation and constrains a maximum bit rate of the
second representation to be less than or equal to a
predetermined value.

13.   The system of claim 10 wherein the processor

15   is further to determine a bit rate for encoding the
image sequence to the VBR representation which
substantially maximizes a desired information content
of the second representation and constrains a maximum
bit rate of the second representation to be less than

20   or equal to a predetermined value.

14.   The system of claim 10 wherein the processor
is to populate a header in the second representation
with data indicating the time intervals Tn.

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15.   The system of claim 10 further comprising a
transmitter to stream the second representation of the
image sequence via a communication network.

30   16.   The system of claim 15 further comprising:
a receiver to receive the second representation of

the image sequence via the communication network;

a buffer; and

a second processor responsive to the receiver to reconstruct frames of the image sequence concurrently

5   with the second representation being received;

wherein during the time intervals Tn, the second processor is to reconstruct frames of the image sequence based on blocks of information Bn received about in real time, and to store the blocks of

10   information Bp in the buffer; and

wherein during the time intervals Tp, the second processor is to reconstruct frames of the image sequence based on the blocks of information Bp stored in the buffer and blocks of information received about

15   in real time.

17.   A system for reconstructing an image sequence originally encoded in a variable bit rate (VBR) representation, the VBR representation comprising a

20   plurality of blocks of information, the VBR representation defining a plurality of time intervals Tp in which a number of blocks of information per unit time is greater than a baseline value and a plurality of time intervals Tn in which a number of blocks of

25   information per unit time is less than the baseline value, the system comprising:

a receiver to receive the second representation of the image sequence via the communication network;

a buffer; and

30   a processor responsive to the receiver to reconstruct frames of the image sequence concurrently

with the second representation being received;

　　　wherein during the time intervals Tn, the processor is to reconstruct frames of the image sequence based on blocks of information Bn received

5　about in real time, and to store the blocks of information Bp in the buffer; and

　　　wherein during the time intervals Tp, the processor is to reconstruct frames of the image sequence based on the blocks of information Bp stored

10　in the buffer and blocks of information received about in real time.

　　　18.　The system of claim 17 wherein the number of blocks of information per unit time in the second

15　representation is about equal to the baseline value in the time intervals Tp and Tn.

　　　19.　The system of claim 17 wherein the second representation comprises a header with data indicating

20　the time intervals Tn, wherein the processor is further to extract the data indicating the time intervals Tn from the header, and to reconstruct the frames based on the data indicating the time intervals Tn.